

PROCEEDINGS  
OF THE  
Hawaiian Entomological Society

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FOR THE YEAR 1934

July, 1935

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JANUARY 4, 1934

The 336th regular meeting of the Hawaiian Entomological Society was held at the Experiment Station, H.S.P.A., January 4, 1934, at 2:30 p. m.

Members present: Messrs. Bryan, Carter, Ehrhorn, Hadden, Illingworth, Krauss, McBride, Riley, Rosa, Schmidt, Swezey, Van Zwaluwenburg, Wilder, and Williams.

Visitor: H. D. Kirschman.

President McBride called the meeting to order.

The minutes of the previous meeting were read and approved.

The secretary-treasurer reported that Mr. Ehrhorn had audited the books of the year just closed, and found them correct.

The secretary reported that the Executive Committee had made the following appointments for the year 1934:

Editor: Mr. O. H. Swezey

Librarian: Mr. J. S. Rosa

Curator of Collections: Mr. J. S. Rosa

The president having announced the payment by the Hawaiian Sugar Planters' Association of the printing bill for the last issue of the Proceedings, it was moved and seconded that the thanks of the Society be expressed to the H.S.P.A. for its generous support; carried unanimously.

EXHIBITIONS AND DISCUSSION OF LOCAL MATERIAL

*Elimaea punctifera* (Walker)—Mr. Rosa exhibited a portion of a sugar cane leaf in the blade of which eggs of this species had been inserted; oviposition in cane leaves has not been observed before. In the discussion which followed Mr. Ehrhorn reported that he had found *Elimaea* eggs inserted in the fleshy leaves of

cactus. Other members reported oviposition by *Holochlora japonica* Brunner in Ficus, and particularly in mango, twigs.

*Phloeobius gigas horaesus* Jordan—A specimen of this anthribid beetle was exhibited by Mr. Riley. It had recently been collected by a University student in the sink of a house in the Makiki Round Top residence district. Upon comparison with specimens at the Bishop Museum, Mr. Swezey had found it to be the same as specimens described by Jordan under this name as a new subspecies in the Marquesas (Marquesan Insects, II, Bernice P. Bishop Museum, Bul. 114, p. 33, 1933). It is the same species collected by Bissell in Honolulu on January 25, 1923 (Proc. Haw. Ent. Soc., V, p. 344, 1924 and VI, p. 250, 1926).

*Xyletobius timberlakei* Perkins—Mr. Swezey exhibited specimens of this anobiid beetle reared from a block of trunk of *Straussia marimiana* sawed from a dead tree on the Marsh trail, Oahu, December 10, 1933. The tree was six inches in diameter, and a section of about a foot in length was brought in. The following insects issued from this block of wood between December 12 and March 13:

- 58 *Xyletobius timberlakei* Perkins
- 6 *Xyletobius proteus* Perkins
- 71 *Proterhinus subplanatus* Perkins
- 3 *Cis calidus* Sharp
- 6 thrips
- 1 *Odynerus pseudochromoides* Perkins, ex nest in beetle burrow.
- 15 Cecidomyids; probably ex rotten wood of heart
- 7 *Toxeuma* sp.; probably a parasite on the *Proterhinus*
- 5 *Ecphylopsis* n. sp.; larger than *nigra* and not so dark; probably parasitic on *Xyletobius*
- 1 *Anthocorid*; a predacious bug
- 3 *Sclerodermus* sp.; a black species; probably parasitic on *Xyletobius*
- 2 *Eupelmus* sp. 1 male, 1 female; near *parombrias*

*Coleotichus blackburniae* White—Mr. Bryan stated that Mr. Caum had reported nymphs of this large shield-back bug as abun-

dant recently in the Manoa Arboretum, where he had never noticed any before. The species seems to be unusually abundant this year in other parts of Oahu as well.

*Pheidole megacephala* (Fabr.)—Dr. Illingworth reported again observing a mating flight of these ants at Kaimuki; he had previously reported a flight last year (Proc. Haw. Ent. Soc., VIII, pp. 243-244). At daylight on the morning of December 14 the air was filled with flying queens. These extended upward as far as the eye could reach, and were widely distributed. As the sun began to appear the insects settled rapidly; by seven o'clock they were all upon the ground. There was a marked disposition to hide under any available object; a garden hose lying on the lawn, it was discovered, concealed dozens of the queens. They avoided colonies of their own species. Several that chanced into the runways of the workers were set upon by great numbers, and pulled away into the nest, in the same way that these workers seize any other hapless insect for food. English sparrows were seen feeding upon queens that chanced to land upon the roof of a house. The weather, as observed in the case of the previous flight, was very humid, a light shower having fallen during the night. Again, no males were in evidence with the queens. But since males had been coming to lights in the evenings, it is presumed that mating may take place high in the air, during the night, the queens continuing their flight until sunrise.

Dr. Williams presented the following notes on a nuptial flight of the same ant at Puhala Rise, Woodlawn, Honolulu, December 14: At about 6:20 a. m., following a night of some rain, the morning being quiet, I saw a large swarm of insects over my driveway; these proved to be male *Pheidole*. The swarm extended from 3 or 4 feet from the ground to well up in the air. These ants maintained a very rapid zigzag flight, shifting occasionally as a whole. There was to me no audible hum produced, such as is occasioned by certain flies. By and by a queen ant could be discovered flying slowly in the swarm at an altitude of about 10 feet, and bearing a readily seen male in copula. A pair was captured and at least three other such pairs were seen later on in the swarm of rapidly zigzagging males.

Flights of *Pheidole* were apparently general in Honolulu on or about December 14, other members reporting them from Manoa, Makiki, and Puunui.

*Omiodes musicola* Swezey—Dr. Williams reported collecting a specimen of this moth in Moalua Valley, Molokai, about 2,100 feet elevation, near a patch of wild bananas. It is the first record of this banana moth on Molokai; it has previously been known only on Maui.

*Isodontia* wasp (Sphecidae)—Dr. Williams gave the following note on the activity of this recent immigrant: In Woodlawn, at about 9 a. m., November 15, 1933, on a bright, calm day, I saw an *Isodontia* wasp rise from about the lawn alongside my house. She carried beneath her body, and extending straight behind, a very light-weight and narrow strip of what seemed to be dried grass. Flying easily with this she searched about the edge of the eaves and finally alighted on the roof and placed her burden in the gap between two shingles. The use of such nest-building material by this wasp is in keeping with the habits of at least some other species of the genus *Isodontia*. The piece of grass was 58 mm. long.

*Cremastus flavo-orbitalis* (Cameron)—Mr. Swezey called to attention that the ichneumonid we have known for a long time as *Cremastus hymeniae* Viereck has been synonymized with *flavo-orbitalis* (Cam.). (Proc. Ent. Soc. Wash., 35, No. 5, p. 73, 1933.) A few other species are also synonymized, all oriental, *flavo-orbitalis* having been described from India in 1907, in the genus *Tarytia*. *C. hymeniae* was first noticed as a new immigrant in Hawaii in 1910, and described by Viereck in 1911. It has become a very useful parasite in Hawaii, having a wide range of hosts in the family Pyraustidae.

#### EXHIBITIONS AND DISCUSSION OF FOREIGN MATERIAL

Mr. Swezey exhibited, for Mr. Mumford, some excellent drawings of Marquesan Cicadellidae and of Marquesan rodents which are to appear in papers to be published by the Pacific Entomological Survey.

*Eleodes consobrina* LeConte—Mr. Swezey exhibited an adult of this tenebrionid found dead in a shipment of almonds originating in Paradise, California.

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## FEBRUARY 1, 1934

The 337th regular meeting of the Hawaiian Entomological Society was held at the Experiment Station, H.S.P.A., February 1, 1934, at 2:30 p.m.

Members present: Messrs. Bryan, Carter, Ehrhorn, Illingworth, Keck, Krauss, Mason, McBride, Mumford, Rosa, Schmidt, Smith, Swezey, Van Zwaluwenburg and Williams.

President McBride called the meeting to order.

The minutes of the previous meeting were read and, after minor corrections, approved.

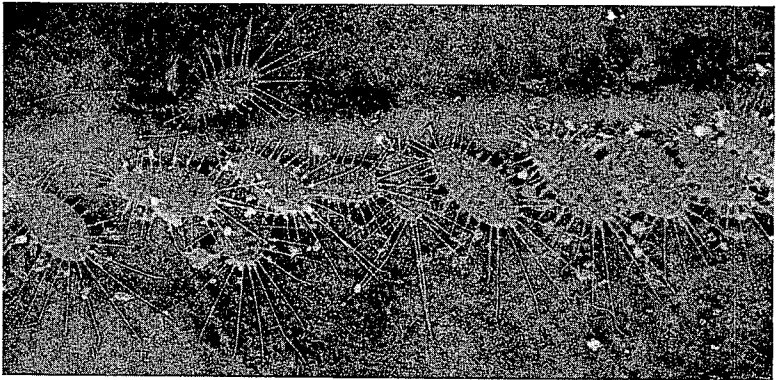
Mr. Krauss suggested that a seal of Hawaiian entomology, or of the entomologists of Hawaii would be preferable to an emblem officially designated as the Territorial entomological seal. He pointed out the suitability of such a seal being agreed upon for their own use by the two or more entomological organizations in the Islands. It was voted that Mr. Krauss be appointed to take up the matter with the University of Hawaii Entomological Club, from whom the suggestion originally came.

Dr. Carter, appointed by the executive committee to investigate the advisability of suggesting to the authorities the passage of a Territorial insecticide law, reported that for the present such action seemed unnecessary.

## EXHIBITIONS AND DISCUSSION OF LOCAL MATERIAL

*Agromyza virens* Loew—Mr. Swezey reported having reared this fly from stem of *Gaillardia* in his garden, January 17, 1934, where all the plants were badly injured by the boring of the larvae in the stems. One puparium was found to have a parasite larva in it. This is an additional host plant for this fly in Hawaii, it already having been reared from *Zinnia* and several other Compositae.

*Pseudococcus straussiae* Ehrhorn—A photograph of a colony of this endemic mealybug was exhibited by Mr. Swezey. The photograph was by Mr. Twigg-Smith, from a colony collected by Mr. Swezey on a leaf of *Straussia kaduana* on the ridge back of Hauula, Oahu, January 6, 1934. This remarkable mealybug is seldom met with. A few were found from which parasites had issued. *Anagyrus gilvipes* Timb. (MS.) has been reared from this mealy-bug from Palolo and Mt. Tantalus.



*Pseudococcus straussiae*

*Xyleborus morigerus* Bland.—Mr. Swezey exhibited specimens of this scolytid obtained from stems of *Dendrobium superbiens*, brought in by Dr. Lyon, January 8, 1934. These orchids were recently imported from Australia. The beetles were found in holes excavated into living stems. Various stages were found in the same cavity, the larvae feeding on a black fungus produced there, rather than on the substance of the orchid stem. A dead spot was produced in the stem, however, due to the excavation or to a fermentation that was brought about. In 4 cavities examined the contents were as follows:

Old female beetle (black).....	1	1	1	1
Fresh adults (ferruginous).....	4	3	....	....
Pupae .....	4	14	10	2
Larvae of various sizes.....	11	26	11	2
Eggs .....	....	3	....	....
Total .....	20	47	22	5

Identification was made by comparison with Blanford's description ("Insect Life," VI, p. 264, 1894) and figures in Chapman's "Orchids and Their Management," p. 14, figs. 1-3, 1903, where it is called *Xyleborus perforans*. The figures, however, are not like *perforans*, but are similar to our specimens and agree in form with Blanford's description. *X. perforans* is more elongate. Possibly some of the records in literature of *perforans* from orchids are in error, and the insect was really *morigerus*, which we now have identified.



*Orchid inspection in the old days*—A photograph was exhibited by Mr. Swezey which depicted a "stirring scene" when a case of orchids was opened in England that had been imported from the tropics. There was a grand scramble with various tools to kill the large roaches, etc., which issued. The picture was by Mr. Twigg-Smith who had photographed a picture in the "Orchid Review," 25, p. 160, 1917. The original was by George Cruikshank, hence produced some time ago.

*Thecla (Tmolus) echion* L.—Mr. Swezey exhibited a pair of this lantana butterfly which had been sent to Dr. John A. Comstock at the Los Angeles Museum for comparison. Dr. Comstock

replies that we have the correct name for this species, and states that the butterfly reported from pineapples in Trinidad and recorded as *echion* is in error, that species being *labes* Drc.

In the discussion that followed it was agreed that this confusion between two distinct insects was particularly unfortunate because the one species from Trinidad, Guatemala and Ecuador is an economic pest of pineapples, while the other, present in Hawaii, does not attack that important crop here. Mr. Swezey quoted Dr. Comstock further to the effect that *labes* is considered by some to be a dwarf race of *echion*, various races of this genus having quite dissimilar food habits. It was pointed out by Dr. Carter that his Guatemala specimens, as well as those bred by Dr. Williams from pineapple in Ecuador, are not dwarfs, but if anything somewhat larger than the Hawaiian species. Dr. Carter's material had been identified as *echion* by Dr. Wm. Schaus at the U.S. National Museum.

*Cryptorhynchus mangiferae* (Fab.)—Two specimens of the mango seed weevil, which had matured January 23 and 27, 1934, from pupae found in seeds in fallen green mangoes, were exhibited by Mr. Swezey. This is an early record for this weevil, and demonstrates that there does not need to be a prolonged dormant period in the winter. An examination of seeds of 145 fallen green mangoes, January 12-27, showed an infestation of 10 per cent already, mostly larvae, but a few already in the pupa stage. By experiments conducted the past few months it was found that the adult weevils could pass the dormant period either in the mango seeds or by issuing from the seeds at the time of maturing and by lying dormant in secluded places. One batch of 52 seeds collected September 15, 1933, had 23 adult weevils issue during the month of October. When finally examined February 1, most of the remaining seeds (which had been in dry condition) were found to contain living adult weevils. It is of interest to note that those weevils which issued from the seeds gnawed through the husk always on the edge which was somewhat concave. Dr. McBride mentioned taking adults of this species in fruit fly traps on January 25 and February 1.



*Ischiodon scutellaris* (Fab.) (*Xanthogramma grandicornis* Macq.)—Dr. Illingworth observed the mating habits of these syrphids near Upolu landing field on the coast of Hawaii. Many attached pairs were seen hovering in the air in sheltered places, behind lantana bushes, etc. A high wind was blowing, though the sun was shining. At times the hovering was almost motionless, so that it was possible to catch the flies in the hand.

*Ammophorus insularis* Boh.—Dr. Illingworth exhibited specimens of this tenebrionid beetle, abundant under stones near Upolu landing field, Kohala, on the island of Hawaii. While this species was named from material collected in Honolulu (Voyage de l'Eugenie, Stockholm, 1858), it was lost sight of for many years. Mr. Horace Sharp rediscovered it in Kaimuki in April, 1920, (Proc. Haw. Ent. Soc., IV, p. 466, 1921). At present it is the most abundant species present in that district. This is apparently the first record of its occurrence on the island of Hawaii.

*Pterolophia cammura* Newm.—Mr. Bryan reported collecting data on this recently identified cerambycid, taken from a small series in the Bishop Museum. Two specimens were taken in Honolulu in 1924 by Bruce Cartwright's son, and another was collected by Mr. Bryan on a screen in Manoa, January 8, 1934. The earliest record appears to be a capture by Kusche in Honolulu, 1919.

*Arctocorixa blackburni* (White)—Mr. Bryan exhibited a series of this water bug taken at light in a bakery on Beretania Street, January 26.

#### EXHIBITIONS AND DISCUSSION OF FOREIGN MATERIAL

Mr. Mumford exhibited a copy of a Centenary History of the Entomological Society of London, together with a group picture of the delegates attending the Centenary celebration.

*Tenebrio obscurus* Fab.—Mr. Bryan reported the finding of this beetle by E. E. Hosaka in a box recently received from the Solomons or Fiji. The origin of the insect is uncertain but is one or the other of those island groups.

*Harroweria gloriosa* Hebard—Mr. Swezey mentioned a paper by Morgan Hebard in the January issue of Entomological News

concerning the *Harroweria katydid* intercepted here in the egg stage and reared to maturity. From the series thus obtained Mr. Hebard has now described the male, until now unknown.

A copy of "Economic Entomology of the West Indies" by Dr. G. N. Wolcott, published by the Entomological Society of Puerto Rico, was exhibited. This volume will be reviewed later by one of the members.

Mr. Krauss mentioned the appearance in Nature Magazine for January, 1934, of a popular article on the New Guinea cane borer written by Pres. D. L. Crawford of the University.

### MARCH 1, 1934

The 338th regular meeting of the Hawaiian Entomological Society was held at the Experiment Station, H.S.P.A., March 1, 1934, at 2:30 p. m.

Members present: Messrs. Bryan, Ehrhorn, Hadden, Illingworth, Krauss, Mason, McBride, Mumford, Rosa, Schmidt, Swezey, Van Zwaluwenburg, and Weinrich.

Visitor: T. T. Waterman.

President McBride called the meeting to order.

The minutes of the previous meeting were read and approved.

### PAPERS ON LOCAL SUBJECTS

Mr. Swezey presented, with an interesting discussion, two papers:

"The Insect Fauna of *Gossypium tomentosum*" and "The Winter Revival of Insect Life in the Arid Koko Head Region."

### PAPERS ON FOREIGN SUBJECTS

Mr. Bryan presented a review of Dr. Wolcott's "Economic Entomology of the West Indies." In conclusion he made a plea for a similar volume for the general crops of the Hawaiian Islands, pointing out that with the exception of the major economic crops very little up-to-date entomological information is obtainable; this is particularly true of the pests attacking garden crops. After discussion it was moved, seconded and voted that the president appoint a committee to see what can be undertaken by the proper

institutions already functioning locally toward studies of the insect pests of minor crops. The chair appointed to this committee Messrs. Bryan, Swezey, and Krauss.

#### EXHIBITIONS AND DISCUSSION OF LOCAL MATERIAL

*Listroderes apicalis* Waterhouse—Mr. Krauss reported that two specimens of this vegetable weevil were collected on Chinese cabbage at Ulupalakua, Maui, on February 12, 1934, by Dr. S. Wakabayashi. This is evidently the first record from the island of Maui. The first specimens collected in Hawaii were found by Mr. Swezey at the Parker Ranch, Hawaii, on May 11, 1926, (P.H.E.S., VI, p. 360, 1927).

*Pycnoderes quadrimaculatus* Guerin—Mr. Krauss reported that this recent plant-bug immigrant was found abundantly on cucumber, lima beans and string beans at Nawiliwili, Kauai, on February 24, 1934, by Dr. Wakabayashi, and also at Waimea, Kauai. Farmers reported it as being abundant since last year. The first specimens in the Islands were collected on purslane at Kaimuki, Oahu, on December 11, 1929, by Dr. Illingworth (P.H.E.S., VII, p. 466, 1931).

*Insects killed by balsa flowers*—Mr. Swezey reported that two of the large flowers of balsa (*Ochroma lagopus*) collected by Mr. Van Zwaluwenburg at the Waipahu clubhouse, on February 2 (one on the tree and still fresh, the other a fallen blossom), were found to contain a considerable number of dead insects accumulated at the base of the corolla tube. When examined each flower contained respectively the following:

Unidentified moth .....	1	
Honey bees .....	7	6
Diptera		
<i>Ophyra nigra</i> .....	2	
<i>Fannia pusio</i> .....		2
<i>Antherigona excisa</i> .....	11	3
<i>Chrysomyia aenea</i> .....	1	
<i>Drosophila melanogaster</i> .....		1
<i>Milichiella lacteipennis</i> .....	4	2
<i>Rhodesiella tarsalis</i> .....	5	
Total .....	31	14

Mr. Van Zwaluwenburg commented on the apparent toxicity of the flowers to insects, stating that the insects were not drowned, for no moisture accumulation occurred in the blossoms. Mr. Swezey pointed out that the blossom did not act like a trap as do flowers of certain insectivorous plants. Dr. Lyon, who was consulted later, is of the opinion that it is the nectar which is poisonous, and stated that apparently there is no record in the literature of balsa being fatal to insects in this way. The entomologists' attention was first called to this effect of balsa flowers on insects, by Mr. Victor C. Schoenberg, of the Bank of Hawaii, Waipahu.

*Lycus planicollis* LeC.—Mr. Ehrhorn exhibited some ax handles from the American Factors' warehouse, which were infested by this immigrant beetle. Placed in a breeding jar on November 10, the material has already yielded 6 adult lyctids: 3 on February 14, and 3 on February 20. This species was first found in hardwood tool-handles by Mr. Willard at Schofield Barracks in April, 1925 (P.H.E.S., VI, p. 232, 1926).

*Holochlora japonica* (Brunn.)—Mr. Ehrhorn exhibited a piece of cactus stem in which a group of eggs had been laid by this locustid.

Mr. Swezey exhibited a copy of "Termites and Termite Control," prepared by a committee and published recently by the University of California Press. This excellent work has been pronounced by Dr. L. O. Howard a monument to the efforts of the committee which was headed by Dr. C. A. Kofoid.

Mr. Schmidt read a request from Mr. Allen McIntosh of the Bureau of Animal Industry, Washington, D. C., for ticks from any animal host.

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#### APRIL 5, 1934

The 339th regular meeting of the Hawaiian Entomological Society was held at the Experiment Station, H.S.P.A., April 5, 1934, at 2:30 p. m.

Members present: Miss Suehiro, Messrs. Bryan, Carter, Chapman, Ehrhorn, Hadden, Keck, Krauss, Marlowe, McBride, Pemberton, Rosa, Swezey, Van Zwaluwenburg and Wilder.

President McBride called the meeting to order.

The minutes of the previous meeting were read and approved.

Messrs. Bryan and Swezey reported for the committee appointed at the preceding meeting to confer concerning the possibility of preparing a general work on the entomology of garden and truck crops. Conferences with University and Museum authorities disclosed that there would be no difficulty in publishing a manuscript on the subject, and that clerical assistance could be counted upon, provided it was directed by the entomologists. A general discussion followed, the gist of which was that available CWA aid should be used to prepare from the available literature a compilation of entomological information regarding the minor crops of the islands. The committee is to report progress at a later meeting.

#### EXHIBITIONS AND DISCUSSION OF LOCAL MATERIAL

*Anthonomus eugenii* Cano—Mr. Krauss reported the finding of larvae, pupae, and adults of the pepper weevil in pepper fruits at Wailuku, Maui, on March 10, 1934, by Mr. N. F. Ambrose, county agent for Maui. This is a new island record for this species, known hitherto only from Oahu and Molokai. Mr. Krauss also reported the finding of adults on young eggplant leaves, and a larva, possibly of this species, in eggplant fruit, at Waipio and Moanalua, Oahu, on April 4th.

Mr. Pemberton remarked that Mr. Bianchi writes that he finds the pepper weevil in Guatemala, and has found there what he believes to be a parasite of it.

*Lema nigrovittata* Guerin—Mr. Krauss reported the capture of an adult of the striped Datura beetle in a building at the University of Hawaii on February 28 by Miss Doris Kotake, a student. He also exhibited specimens and recorded finding egg-masses, larvae, and adults of this chrysomelid on the leaves of "angel's trumpet" (*Brugmansia arborea*) and of jimson weed (*Datura stramonium*) on March 6 and 29, in Honolulu.

*New immigrant braconid*—Mr. Swezey exhibited specimens of a new black immigrant braconid, 8 specimens of which he had collected by sweeping on herbage at Koko Head, February 17 and

20, 1934. One specimen was reared from a larva at the base of *Portulaca oleracea* plants, apparently *Opogona aurisquamosa*, the braconid cocoon having the caterpillar's skin attached.

*Lepideupelmus setiger* (Perkins)—Mr. Swezey exhibited a specimen of this eupelmid which had issued from the larval case of *Hyposmocoma empedota* Meyrick found on bark of a kiawe tree in the Koko Head region. The parasite issued March 19 from a batch of the *Hyposmocoma* cases brought in March 2. Another specimen of the eupelmid was collected from the bark of a kiawe tree, March 24.

*Hemiteles tenellus* (Say)—Mr. Swezey exhibited a specimen of this cryptid bred from a larval case of *Hyposmocoma empedota* from the bark of kiawe at Koko Head, Oahu. The parasite had issued March 19 from material collected March 2. Heretofore this parasite has been bred from lacewing-fly cocoons.

*Periplaneta ignota* Shaw—Mr. Swezey exhibited a specimen of this Australian roach, collected in his home in Manoa, March 18, 1934. The only previous record of this roach in Hawaii is one collected by Dr. Illingworth and recorded by Mr. Swezey in the "Proceedings" in November, 1929.

*Spalangiid ex weevil larvae*—Mr. Swezey exhibited a spalangiid which had issued from a jar containing bits of rotten boards from which several species of weevils had been issuing, and therefore it would appear that it might be a parasite of one of the weevils. Mr. Ehrhorn had brought in the rotten boards (pieces of boxes which had contained growing plants) from his place in Manoa Valley, Feb. 19, 1934. The following beetles had issued at various times:

13 *Oxydema fusiforme* Woll.

20 *Dryophthorus distinguendus* Perk.

2 *Osorius rufipes* Motsch.

The spalangiid appeared March 28. It is "No. 38," an unidentified species, in Timberlake's list of introduced chalcid-flies (Proc. Haw. Ent. Soc., V, p. 427, 1924). Mr. Timberlake considered it as apparently belonging to a new genus near *Cerocephala*. This is the first indication of its host relations.

*Brachymeria obscurata* (Walk.)—Mr. Swezey exhibited a specimen of this chalcid-fly which had issued from a chrysalid of *Lycaena blackburni* (Tuelly) which he had collected on a leaf of the opiuma tree (*Pithecolobium dulce*) in Punahou pasture, March 12, 1934. This is an addition to the large number of hosts of this parasite in Hawaii.

*Oliarus discrepans* Giffard—Two nymphs of this cixiid were exhibited by Mr. Swezey, who had found them under a stone in the kiawe forest at Koko Head, March 27. It was not apparent what they had been feeding on. No plant roots were conspicuous. They seemed to thrive on *Portulaca oleracea* when placed in a vial with the stem and roots of this plant. The young of this cixiid had not previously been observed.

*Unique dipterous puparium*—Mr. Swezey also exhibited a puparium of the Mexican tachinid *Archytas cirphis* Curran, which showed, instead of the usual pair, a single stigmatic area.

*Plusia spp. injuring pineapple fruits*—Dr. Carter noted an outbreak of these semi-loopers, with more than one species involved, on pineapples. The trouble is concentrated on Molokai, but occurs on some of the other islands as well. The larvae which feed on the pineapple flowers continue into the eyes of the fruit, reaming out a fair-sized cavity in which secondary decay sets in. Reports of field men to the effect that the larvae had cleaned up the *Solanum* weeds in one field where infestation of the fruit occurred, was commented upon by Dr. Chapman.

*Telmatoscopus albipunctatus* Williston—A sugar cane plant grown in a jar of standard nutrient solution by Mr. J. P. Martin of the pathology department of the H.S.P.A. Experiment Station, was exhibited by Mr. Van Zwaluwenburg. Large numbers of the larvae and semi-mobile pupae of this psychodid were clustered on the roots just at the surface of the liquid; they appeared to get their nourishment from the nutrient solution rather than from the plant roots, which were uninjured. This is the species listed as *Psychoda albipuncta* in Aldrich's Catalogue of North American Diptera, and was described originally from Cuba.

## EXHIBITIONS AND DISCUSSION OF FOREIGN MATERIAL

*Dacus oleae* Rossi—Mr. Keck exhibited the empty puparium of a *Dacus*, probably the European olive fly, obtained from canned European green olives purchased locally. Several of the fruits had been infested but only the single pupa-case could be found.

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MAY 3, 1934

The 340th regular meeting of the Hawaiian Entomological Society was held at the Experiment Station, H.S.P.A., May 3, 1934, at 2:30 p.m.

Members present: Miss Suehiro, Messrs. Bryan, Carter, Ehrhorn, Illingworth, Keck, Krauss, Marlowe, Mumford, Pemberton, Rosa, Swezey, Van Zwaluwenburg, Weinrich, and Willard.

In the absence of the President, the Vice-President, Dr. Carter, presided.

The minutes of the previous meeting were read and approved.

The Society expressed regret at the death, on April 29, 1934, of Mr. E. D. Tenney, a member of the Society since 1907.

## EXHIBITIONS AND DISCUSSION OF LOCAL MATERIAL

*Cybister limbatus* Fabr.—Mr. Krauss exhibited adults of this dytiscid beetle obtained at a Chinese drug store in Honolulu, November 23, which is said to be used for kidney trouble. The material was imported in a dry condition from either Canton or Kowloon, China; specimens were identified by L. L. Buchanan of the U. S. Bureau of Entomology.

*Hellula undalis* Fabr.—Mr. Krauss exhibited adults of the cabbage webworm reared from daikon (*Raphanus sativus longipinnatus*) and from Chinese cabbage (*Brassica chinensis*) obtained at Waipio, Oahu, April 4. The damage to daikon was especially severe, the leaves, stems, and roots being attacked.

*Liomyza pusilla* (Meigen)—Mr. Krauss reported rearing this serpentine leaf-miner from the leaves of daikon and Chinese cabbage from Waipio, April 4. The parasite *Chrysocharis parksi* Cwfd. was reared from puparia.



*Nutgrass insects*—The rearing of the nutgrass moth (*Bactra truculenta* Meyr.) and of the nutgrass weevil (*Athesapenta cyperi* Marsh.) from material obtained in February at Hauula, Oahu, was reported by Mr. Rosa. These are new locality records for these species.

*Mithrastethus bituberculatus* Fabr.—An adult of this rare weevil, the second record for the island, was exhibited by Mr. Rosa. It was taken on a window screen in Nuuanu Valley, Honolulu, November 18, 1932; the previous capture was made in Manoa Valley.

*Gonocephalum seriatum* (Boisd.)—Mr. Rosa exhibited a large pan filled with living adults of this tenebrionid beetle collected under stones in the dry Koko Head region. The rearing in confinement of the giant West Indian toad requires large amounts of living insects for food, and it is fortunate that beetles are available in such quantities.

*Araecerus vieillardii* (Montr.)—Mr. Swezey reported that in looking over the specimens under *Araecerus fasciculatus* (DeG.) in the collection at the H.S.P.A. he had found that 17 specimens were *A. vieillardii*, a species closely related to *fasciculatus* whose presence in Hawaii had not been heretofore recognized. He was able to distinguish it by the characters mentioned by Dr. Jordan in "Insects of Samoa," part IV, fasc. 2, p. 165, 1928. The joints of the "antennal club are nearly symmetrical and the fore-tibia of the male armed with a strong apical mucro." The species was described from New Caledonia in 1860; and has been recorded from Samoa, Tonga and the Philippines. The earliest collected specimens in Hawaii were: Glenwood, Hawaii, and Makiki, Oahu, 1917. Other dates and localities: Hana, Maui, 1920; Waipio and Ewa Coral Plain, Oahu, 1920; Honolulu, Waimanalo and Waiahole, 1921; Hilo, Hawaii, 1921; Oahu Sugar Company and Honolulu, 1922; Iao Valley, Maui, 1924; Wailuku, Maui, 1927. The records as to hosts are: dead Ricinus, decaying Sicana vine, Dolichos bean vine, dead Xanthium, dead Croton twig and pamakani (*Eupatorium glandulosum*).

*Isodromus axillaris* Timb.—Mr. Swezey exhibited specimens of a chalcid-fly which had issued from cocoons of a lacewing fly, collected by him on a citrus tree at Mrs. Swanzy's, April 6 and

April 21, 1934. A dozen specimens had issued from 3 cocoons, 4 per cocoon in each case, April 10, 13, and 30, respectively. The species seems to be *Isodromus axillaris* described by Timberlake from 3 specimens collected by Koebele in China (Proc. U.S. Nat. Mus., 56, p. 183, 1920). No mention was made of host relations, but as he gives Koebele's number (No. 1553) perhaps we may be able to ascertain something in that respect. Specimens will be sent to Timberlake for verification. This insect has not been previously recorded here. It is an undesirable immigrant as it parasitizes a beneficial insect.

In passing, Mr. Swezey mentioned that Koebele's notebooks of the various foreign trips he took while employed by the H.S.P.A. and by the Territory of Hawaii have within the past year come into the possession of the California Academy of Sciences.

*Symphorobius barberi* Banks—Mr. Swezey exhibited larvae and cocoons of what is supposedly this lacewing fly. Four larvae were found feeding on *Pseudococcus longispinus* (Targ.) on a ti plant on the porch of his residence April 27, 1934. They readily ate the young of the pink sugar cane mealybug. If when mature, these prove to be the species indicated, it will indicate that it must be well established and spread.

Dr. Carter, in discussion, said that the species is one of Rust's introductions, made in 1929, from Mexico.

*Lariophagus* sp.—A series of this pteromalid was exhibited by Mr. Swezey, who had found them in a tin container having macaroni infested with *Sitodrepa panicea* (L.). The tin had not been opened for several months and probably the beetle and parasite had each produced more than one generation. It is apparently an undescribed species, and may be "No. 20" of Timberlake's list in Proc. Haw. Ent. Soc., V, No. 3, p. 423, 1924.

\**Philodoria* n. sp.—Mr. Swezey exhibited a new species of lepidopterous leaf-miner reared from mines in leaves of *Pipturus*, collected on Makaha Ridge, Oahu, about 3,000 feet elevation, Wai-anae Mts., April 15, 1934. Several moths were reared; this makes the seventh leaf-miner in *Pipturus* in Hawaii. It is very close to the species *micropetala* Walsm. occurring on Kauai.

\* *Philodoria costalis*. Described by Swezey in Proc. Haw. Ent. Soc., VIII, p. 524, 1934. [Ed.]

*Protaenasius* sp.—Mr. Swezey reported rearing this parasite from *Ferrisia*\* *virgata* (Ckll.) on leaf of cup-of-gold (*Solandra grandiflora*) at his residence, April 30, 1934.

*Litomastix floridana* (Ashm.)—Dr. Illingworth exhibited a dried caterpillar of *Plusia chalcites* Esp. from which hundreds of this encyrtid wasp had emerged. Caterpillars of this moth had been a scourge in the garden at Kaimuki during February and March, 1934, when their ravages suddenly ceased. During April it was difficult to find a single caterpillar, though the moths were seen among the plants in the evening. To all appearances this valuable parasite is doing excellent work. Swezey's paper (Proc. Haw. Ent. Soc., VII, p. 419, 1931) covers the subject of life history, etc., fully.

*Hunterellus hookeri* Howard—Parasitized nymphs of *Rhipicephalus sanguineus* Latr., the common dog tick, which were collected April 6, by Mr. Van Zwaluwenburg, yielded three separate lots of *Hunterellus* adults which issued on April 20, 23 and 25. This developmental period is long enough to make it possible to send host material considerable distances.<sup>1</sup>

#### EXHIBITIONS AND DISCUSSION OF FOREIGN MATERIAL

*Dacus oleae* Rossi—Mr. Bryan reported that he had determined the puparium found by Mr. Keck in a canned olive, and exhibited at the previous meeting, to be that of the olive fly, *Dacus oleae*, by comparison with notes and figures given by C. T. Greene in "Characters of the larvae and pupae of certain fruit flies" (Jl. Agr. Res., 39, No. 9, pp. 489-504, 1929). There is a closer similarity between the spiracle plates of the olive fly and those of the melon fly than with any of the other species described, but these structures furnish a distinct means of identification.

*Muscoid Diptera*—Mr. Bryan exhibited 20 specimens representing five species of calyptrate Diptera, sent to B. P. Bishop

\* In 1929 Takahashi (Trans. N. H. Soc. Formosa, 19, p. 429) proposed the name *Ferrisiana* for *Ferrisia* Fullaway, on the supposition that the latter was preoccupied. Apparently this procedure is not necessary, for *Ferrisia* Fullaway was published in 1923; whereas the other use of *Ferrisia* was by Uchida in 1926 for a species of Mallophaga. Hence, it is *Ferrisia* Uchida which needs to be replaced rather than *Ferrisia* Fullaway.

<sup>1</sup> Since this note was written another lot of adult parasites issued May 5. Whether these represent a nymph already parasitized when collected, or a new generation from the adults of April 20 or 23, is not certain.

Museum in exchange by A. J. Basinger of Riverside, California. Three of the species: *Phormia regina* Meigen, *Calliphora latifrons* Hough and *Musca domestica* L. are recorded from Hawaii. The other two: *Muscina stabulans* Fallen and *Muscina assimilis* Fallen are species which might arrive as immigrants at any time. All these authentically determined specimens will be useful for comparison.

*Fruit Flies in American Samoa*—Mr. Willard, lately returned from a visit to American Samoa, discussed some of the features of his trip. His main object was to determine what fruit flies are present there, and what their hosts are. In spite of the difficulty of getting an adequate supply of ripe fruits he was able to rear two species of *Dacus*: the more common *D. xanthodes* Broun bred from avocado and papaya, and *D. psidii* Froggatt from papaya and French cherry (*Eugenia* sp.). Larvae of what was perhaps *D. psidii* were found in guava fruits, but were not reared. No parasites of either of these species were observed.

Mr. Krauss called attention to the notice in one of the entomological journals of the death, on March 3, 1934, of J. August Kusche, well known as a collector in the Islands, where he had worked at various times.

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## JUNE 7, 1934

The 341st regular meeting of the Hawaiian Entomological Society was held at the Experiment Station, H.S.P.A., June 7, 1934, at 2:30 p. m.

Members present: Messrs. Hadden, Ehrhorn, Carter, Keck, Illingworth, Bryan, Schmidt, Swezey, Rosa, Marlowe, McBride, and Pemberton.

Visitor: H. D. Kirschman.

President McBride called the meeting to order.

The minutes of the previous meeting were read and approved.

### EXHIBITIONS AND DISCUSSION OF LOCAL MATERIAL

*Coleoptera from dead breadfruit*—Mr. Swezey reported the rearing of the following beetles from a small, dead branch of a

breadfruit tree collected by him in Honolulu, May 11, 1934, and from which the beetles matured between May 13th and 30th:

*Sybra alternans* Wied. (Cerambycidae. 3 adults and 8 larvae)

*Laemophlaeus minutus* (Oliv.) (Cucujidae. 2 adults)

*Hypothenemus ruficeps* Perkins (Scolytidae. 2 adults)

“ sp. “ 2 “

“ sp. ? “ 14 “

The last species may be of a different genus, since the specimens are distinctly different from other species of *Hypothenemus* known here, according to Mr. Swezey. He found their larvae feeding in the cambium layer, while the *Sybra* larvae fed beneath bark and two were feeding in the pith.

*Isodromus axillaris* Timb.—Mr. Swezey reported having reared four specimens of this parasite, on May 10, 1934, from a cocoon of *Chrysopa microphya* McLach., which was formed by a larva he had collected on a Chinese orange tree. He had tried the larva on eggs of *Lema nigrovittata* DeG., which were eaten readily. A cluster of 21 eggs was given on April 20 and by the next day all had been eaten except one. On that day a cluster of 40 eggs was given, 14 of which were eaten by the following day, when the larva seemed to be full-grown, for it made its cocoon on the following day. This incident demonstrates that the parasite attacks its host when in the larval stage.

In another instance 65 *Chrysopa microphya* cocoons were collected from an orange tree in the grounds of Central Union Church, Honolulu, June 6, 1934. Fifty-three of the cocoons were open. Of these, the adult *Chrysopa* had issued from 12 and parasites had issued from 41, which equals 77% parasitism. The 12 unissued cocoons were retained to ascertain whether parasitized or not. On the same day 6 *Isodromus* issued from one cocoon.

*Thecla echion* (Linn.)—Mr. Swezey reported having found a larva of this butterfly feeding on a green fruit of *Solanum sanitwongsi*, growing by the fence in the grounds of the Experiment Station, H.S.P.A., Honolulu, May 31, 1934. This makes an addition to the occasional host plants of this lantana butterfly.

*Lycaena boetica* (Linn.)—Mr. Swezey reported observing this bean butterfly ovipositing on the buds of a garden pepper in the

grounds of the Experiment Station, H.S.P.A., Honolulu, June 7, 1934. It will be of interest to ascertain whether the larvae will develop on this plant.

*Saissetia hemispherica* (Targ.)—Mr. Swezey reported having reared the following parasites from a few twigs of *Solanum san-tiwongsi* heavily infested with the hemispherical scale at the Experiment Station, H.S.P.A., Honolulu, May 31, 1934:

*Encyrtus barbatus* Timb. (9 females and 6 males)

*Encyrtus infelix* (Emb.) (1 female)

*Scutellista cyanea* Motsch. (5 adults)

*Aneristus ceroplastae* Howard (4 adults)

*Lobodiplosis pseudococci* Felt.—Dr. Carter reported the rearing of this introduced Mexican cecidomyid from *Pseudococcus brevipes* (Cockerell), from material collected by Mr. Ehrhorn at his residence in Manoa Valley, Honolulu.

*Anthonomus eugenii* Cano.—Mr. Pemberton reported the finding of the pepper weevil *Anthonomus eugenii* on chili peppers in Hilo, Hawaii, on May 5, 1934. This is the first record of the occurrence of this weevil on the island of Hawaii.

Dr. Carter complimented two members of the Society, Messrs. Schmidt and Marlowe, on their attainment of advanced degrees in entomology; the former a Doctor's degree from the Graduate School of Tropical Agriculture and the latter a Master's degree from the University of Hawaii.

President McBride gave an interesting account of his recent visit to Washington, D.C., and explained in particular some of the present policies of the U.S. Bureau of Entomology. During his visit he had opportunity of seeing Dr. L. O. Howard, who sent his best wishes to this Society.

#### EXHIBITIONS AND DISCUSSION OF FOREIGN MATERIAL

*Pacific Biogeography*—Mr. Bryan gave a brief review of "Contribution a l'etude du peuplement zoologique et botanique des Îles du Pacifique" recently issued by la Société de Biogeographie, Paris, as Memoires Vol. IV, 288 pp. pls. and figs., 1934. In a series of 16 articles, mostly in French, information on Pacific Island insects is given by L. G. Seurat, Lucien Berland, L. Cho-

pard, Miss Evelyn Cheesman, Karl Holdhaus, E. P. Mumford and A. M. Adamson, and E. H. Bryan, Jr.

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### JULY 5, 1934

The 342nd regular meeting of the Hawaiian Entomological Society was held at the Experiment Station, H.S.P.A., July 5, 1934, at 2:30 p. m.

Members present: Miss Suehiro, Messrs. McBride, Hadden, Ehrhorn, Keck, Schmidt, Bryan, Weinrich, Marlowe, Rosa and Pemberton.

Visitor: Mrs. E. P. Mumford.

President McBride called the meeting to order.

The minutes of the previous meeting were read and approved.

#### REPORTS OF OFFICERS AND COMMITTEES

Mr. Bryan, acting as Editor in the absence of Mr. Swezey, reported that Volume 8, Part 3, of the Proceedings of the Society, had passed through the stages of proofreading, was now in press and was expected out in a short time. Mr. Bryan presented the completed manuscript for Index to Volume 8, which he had compiled. It was agreed that he be authorized to arrange for its immediate publication.

#### EXHIBITIONS AND DISCUSSION OF LOCAL MATERIAL

*Lema nigrovittata* Guérin. — Dr. Schmidt inquired regarding the present known distribution of the striped *Datura* beetle and suggested that more information be presented by the members on this subject in the future. Mr. Pemberton stated that it had already spread to Oahu Sugar Company, some 15 miles from Honolulu.

*Bufo marinus* (Linné)—Mr. Keck reported finding this introduced toad near a swarm of honeybees, which had recently occupied space under a house in Manoa Valley, Honolulu, and suggested the possibility that the toad was feeding on the bees. Mr. Pemberton stated that this toad is known to eat honeybees in Puerto Rico and that recently at Waipio, Oahu, toads were found to gather beneath commercial hives in the evening and feed on the bees exposed at the hive entrance, but only in those cases where

the hives were not raised more than a foot above the ground. Protection could be easily secured by surrounding the apiary with a low, wire fence or by raising the hives 2 or more feet above the ground.

*Megarhinus Mosquitoes*.—Mr. Bryan drew attention to a recent publication by R. W. Paine in the Bulletin of Entomological Research, Vol. 25, Part 1, March, 1934, discussing the results of introductions of two species of *Megarhinus* into Fiji, in connection with mosquito control work. Mr. Pemberton stated that the original introduction of the New Britain species *Megarhinus inornatus* Walk. into Hawaii has apparently failed, as none of these mosquitoes has been seen after the first year of colonization in upper Manoa Valley, Honolulu.

*Pyrophorus* sp.—Mr. Pemberton exhibited a living larva of a species of *Pyrophorus*, introduced to Hawaii from Guatemala by F. X. Williams and F. A. Bianchi. A total of 185 of these were shipped to Honolulu during June and July, 1934. This predator will be liberated in cane fields of Oahu, which are being damaged by the grubs of *Anomala orientalis*.

*Elis pulchra* (Cam.)—Mr. Pemberton exhibited adults of this scoliid wasp which had emerged from cocoons shipped to Honolulu from Guatemala by F. X. Williams and F. A. Bianchi during May, 1934. These are parasitic on certain *Anomala* grubs in Guatemala and are being bred in Honolulu for distribution in sugar cane fields infested with *Anomala orientalis*.

Mr. Ehrhorn announced his intention of visiting South American seacoast ports in the near future. Dr. Schmidt suggested that he carry a letter of greetings and introduction from the Society to South American entomologists. A motion to this effect by Mr. Bryan, seconded by Mr. Keck, was made and passed, with instructions that the Secretary prepare such a letter.

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#### AUGUST 2, 1934

The 343rd regular meeting of the Hawaiian Entomological Society was held at the Experiment Station, H.S.P.A., August 2, 1934, at 2:30 p. m.



Members present: Messrs. McBride, Marlowe, Keck, Rosa, Ehrhorn, Mumford, Swezey, Bryan, Schmidt, Illingworth, and Pemberton.

Visitor: Mrs. E. P. Mumford.

President McBride called the meeting to order.

The minutes of the previous meeting were read and approved.

#### READING OF PAPERS ON LOCAL SUBJECTS

Mr. Swezey presented a paper by Dr. R. C. L. Perkins entitled "Notes on Oodemas with Descriptions of Some New Forms (Col.)".

#### EXHIBITIONS AND DISCUSSION OF LOCAL MATERIAL

*Volucella pusilla* Macq.—Mr. Swezey exhibited a specimen of this fly which he captured from the windshield of an auto at Kailua, Hawaii, on July 30, 1934. This is the first record of its occurrence on the island of Hawaii.

\**Onthophagus* sp.—Mr. Swezey exhibited specimens of a small, black dung beetle, which he had collected in cow dung in a cow yard at the residence of Miss Ella Paris at Kealahou, Kona, Hawaii, July 29, 1934. The beetles were quite abundant in cow dung a day or two old. It is an unidentified species, which was introduced in September, 1923, by Mr. H. T. Osborn, who had sent material from Morelos, Mexico. This is the first record of its establishment in the Hawaiian Islands. Mr. Swezey stated that it is widely spread on the island of Hawaii, for Mr. Herbert Shipman had also collected a specimen at his residence near Olaa during July.

*Apanteles glomeratus* (Linn.)—Mr. Swezey exhibited cocoons and specimens of this braconid, which he had reared from larvae of the cabbage butterfly collected on broccoli in the vegetable garden of the Kilauea Volcano House, Hawaii, July 24, 1934. The presence of this parasite in the Kilauea region was first made known by Mrs. T. A. Jaggar, who had found a cluster of cocoons on a broccoli leaf in her garden July 6. Four cabbage worms col-

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\* Later determined by Dr. E. A. Chapin of the U.S. Bureau of Entomology as *Onthophagus incensus* Say. [Ed.]

lected at the same time all had the parasites issue from them a few days later. Search in the hotel garden revealed the presence of the parasite there. There were good-sized patches of broccoli and cabbage in this garden and the worms were not numerous on the plants. Clusters of the parasite cocoons were found on the leaves. Collections were made of the cabbage worms on several occasions. These were retained until the parasites had issued and formed cocoons, when they were sent to Mr. D. T. Fullaway in Honolulu, in an effort to establish this parasite on Oahu. From these collections the parasitism was as follows:

3 cabbage worms collected July 8, 66% parasitism					
20	"	"	"	"	11, 85% "
60	"	"	"	"	18, 73% "
32	"	"	"	"	24, 60% "

Mr. Fullaway has stated that he brought this parasite from Japan in 1923, but had no record of its being distributed to the island of Hawaii. There are no previous records of its establishment in the islands. Mr. Swezey stated that it is widespread on the island of Hawaii, for it was found in cabbage patches in the Kona district on July 29-30 and at Waimea on July 31. It was very evident that it is a valuable check on the cabbage worm. He further stated that many of the cabbage worms from the Volcano House garden, from which *Apanteles* issued, also contained maggots of the tachinid parasite *Frontina archipitvora* Will. In one lot of worms, 60% contained these maggots, while from five chrysalids of the cabbage worm, collected at the same locality, four contained the tachinid maggots. This is evidence that this tachinid is also a valuable parasite of the cabbage worm.

*Erebus odora* (L.).—Mr. Bryan stated that he had seen this moth at Pupukea, Oahu, on August 1, 1934, on the edge of the native forest at about 1,000 feet elevation, which is a new distributional record for this insect.

*Atherigona excisa* (Thomson) var. *trilineata* Stein.—Dr. Illingworth stated that this fly hastens the decay of freshly fallen avocados by ovipositing abundantly in any small wounds that may occur on the fruit. Following oviposition, many maggots spread into the pulp from the wounds very quickly.

*Tenebroides mauritanicus* (Linn.)—Mr. Ehrhorn stated that his attention had recently been called to an infestation by this beetle in the walls of a house in Honolulu. For insulation against sound, rice hulls had been packed behind the wooden walls. The hulls were infested with this pest of stored grains and the beetles had passed through the tongue-and-groove joints of the woodwork and appeared within the house. Mr. Pemberton exhibited a larva of the same insect, which had also left the rice hulls and passed through the wooden wall of a room in the same house.

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#### SEPTEMBER 6, 1934

The 344th regular meeting of the Hawaiian Entomological Society was held at the Experiment Station, H.S.P.A., September 6, 1934, at 2:30 p. m.

Members present: Miss Suehiro, Messrs. McBride, Mumford, Marlowe, Illingworth, Mason, Bryan, Swezey, Rosa, Carter and Pemberton.

Visitor: Mrs. E. P. Mumford.

President McBride called the meeting to order.

The minutes of the previous meeting were read and approved.

#### REPORTS OF OFFICERS AND COMMITTEES

Mr. Swezey reported that the Executive Committee had met and approved the bill from the Honolulu Star-Bulletin for the printing of Volume 8, No. 3 of the Proceedings of the Society and that the bill had been transmitted to the Secretary of the Hawaiian Sugar Planters' Association for payment, as per previous arrangement with the H.S.P.A.

Mr. Swezey reported that the bill from the Honolulu Star-Bulletin for the printing of the Index to Volume 8 had also been received. Mr. Pemberton, as Acting Secretary-Treasurer, stated that the bill amounted to \$223.50; that cash on hand at present amounted to \$135.81 and the outstanding unpaid dues of active members of the Society have reached a total of \$129.50. It was urged that all who could do so pay their dues, in order that this bill might be met by the Society, in the usual manner, without soliciting aid elsewhere.

## READING OF PAPERS ON LOCAL SUBJECTS

Mr. Swezey read a paper entitled, "Notes on Cerambycidae on the Island of Hawaii, 1934 (Col.);" and exhibited specimens of the beetles discussed in the paper.

Mr. Bryan read a paper entitled, "Insects from Rabbit Island" and exhibited a map and photographs illustrative of the situation and topography of the island, together with specimens of the insects collected.

## EXHIBITIONS AND DISCUSSION OF LOCAL MATERIAL

*Cryptolucilia caesarion* (Meig.)—Mr. Swezey exhibited specimens of this fly, which had been reared by him from bluish maggots found abundant in cow dung at the Kapapala Ranch about 9 miles southwest of the Volcano House, Hawaii, June 21, 1934. He also found it abundant at a dairy in Hilo, Hawaii, August 1. This is the first record of this fly in the Hawaiian Islands. It was identified from three specimens of Illingworth's Diptera at the Bishop Museum, Honolulu. These specimens were from Texas, Iowa and Colorado, sent by Dr. J. M. Aldrich. It is a European fly, listed as *Pseudopyrellia cornicina* (Fab.) in Aldrich's Catalogue of North American Diptera, in which he states "Common and widespread in the United States." In a more recent publication it is listed as *Cryptolucilia caesarion* (Meig.)

*Neotermes connexus* Snyder—Mr. Swezey presented some notes on the altitudinal distribution of this termite on the island of Hawaii. He found it in the following localities:

June 21—In the giant koa tree, Mauna Loa trail, at 4,450 feet elevation.

June 26—In dead *Acacia koa* at Ohaieka. Elevation about 4,500 feet.

June 28—In dead *Suttonia lessertiana* at Kamoapuhi Crater. Elevation 2,900 feet.

July 4—In standing dead koa, Mauna Loa trail, one-quarter mile beyond giant koa. Elevation about 4,600 feet.

July 13—In dead *Straussia* and *Pipturus*, Panaewa forest. Elevation 450 feet.

July 17—In dead *Straussia*, Kipuka Puaulu. Elevation about 4,000 feet.

July 25—In dead koa, Puu Oo trail. Elevation about 4,500 feet.

The termites were rather scarce considering that dead trees and fallen logs were so abundant in these regions. In all places where the termites were found the climate was rather dry. No evidence of them was found in the wettest regions. Search was made higher up along the Mauna Loa trail, three miles beyond the highest station mentioned, without finding any evidence of termites, though there was ample supply of dead koa trunks and the climate was dry. Mr. Swezey was of the opinion that further search will be necessary before determining definitely whether this termite does occur at higher elevations than those mentioned.

*Ceratitis capitata* Wied.—Mr. Swezey reported finding a single Mediterranean fruit fly maggot in a berry of the ohelo (*Vaccinium reticulatum*) in the Hawaii National Park. This infested berry was found by Mr. F. S. Paine, on July 21, 1934. Mr. Swezey reared the maggot to maturity until it formed its puparium. It died, however, without developing to a fly. Positive identification was made from the puparium. Considerable search was made for more infested ohelo berries without success. Apparently this is the first record of the ohelo as a host for this fly. A specimen of *Diachasma tryoni* (Cam.), one of the introduced parasites of the Mediterranean fruit fly, was swept from bushes of the Jerusalem cherry (*Solanum pseudocapsicum*) along the Mauna Loa trail, at about 4,400 feet elevation, June 23, 1934. Fruits of this plant were numerous in all stages of growth; but none was found infested. However, the capture of the *Diachasma* there, would indicate that there must have been infested fruit on the plant. The Jerusalem cherry plant was very abundant and of large size, with many acres occupied by it.

*Opis fletcheri* Silv.—Mr. Swezey reported having found a ripe passion fruit in his garden in Manoa Valley, Honolulu, on August 9, 1934, infested with maggots, which upon being reared, proved to be those of the melon fly *Chaetodacus cucurbitae* (Coq.). A total of 33 maggots from this fruit formed puparia from which eight flies emerged on August 20. From 23 of the remaining puparia there issued between August 22 and 25, 5 male and 18 female *Opis fletcheri* Silv., which is a parasitism of 70 percent. This passion fruit is a new host record for the melon fly.

It is a species called *alata*, but probably incorrectly. It is more likely a hybrid of *alata*.

*Agrotis cinctipennis* (Butler).—A specimen of this Noctuid moth was exhibited by Mr. Swezey, who had reared it from a larva found on a leaf of *Wikstroemia* on Mt. Kaala, Waianae Mts., at 3,500 feet elevation, April 15, 1934. A colony of 102 recently hatched larvae were found feeding gregariously on one leaf. In the attempt to rear them, it was difficult to supply them with fresh *Wikstroemia* leaves and many succumbed when quite small. Eventually one individual survived and formed a cell for pupation May 25; pupated June 1 and the adult issued June 18. This is the first record of this species feeding on *Wikstroemia*. Mr. Swezey stated that a similar colony was once found feeding on a *Pittosporum* leaf, which on rearing proved to be this species. A few times egg clusters have been found on leaves of various forest trees and the larvae, when hatched, reared on *Sonchus* leaves.

*Argyroplote illepida* (Butler).—Two specimens of this tortricid moth were exhibited by Mr. Swezey, who had bred them from pods of *Mezoseurum kauaiense*. Thirty-two pods were collected from a tree near the road at about 2,000 feet elevation on the north side of Mt. Hualalai, Hawaii, July 30, 1934. Five of the pods had been infested by the larvae of some moth, which on rearing proved to be this species. The two adults issued August 16 and August 23. This is an additional host for this moth.

*Coccus viridis* Green.—Dr. Carter stated that he had obtained very satisfactory results in the control of the green scale *Coccus viridis* on *Ixora macrothyrsa*, by the use of a spray consisting of a 2 percent solution of Diesel oil emulsion. The spray had no injurious effect upon the plant.

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#### OCTOBER 4, 1934

The 345th regular meeting of the Hawaiian Entomological Society was held at the Experiment Station, H.S.P.A., October 4, 1934, at 2:30 p. m.

Members present: Miss Suehiro, Messrs. McBride, Weinrich, Schmidt, Au, Ito, Chapman, Swezey, Rosa, Illingworth, Wilder, Keck, Bryan and Pemberton.

Visitors: Mrs. E. P. Mumford, Miss Mabel Chong and D. Murakoshi.

President McBride called the meeting to order.

The minutes of the previous meeting were read and approved.

#### REPORTS OF OFFICERS AND COMMITTEES

Mr. Swezey reported that the Executive Committee had met and approved the payment of \$223.50 to the Honolulu Star-Bulletin for the printing of 450 copies of the Index to Volume 8 of the Proceedings of the Society. Since there were insufficient funds in the treasury to meet this bill, President McBride suggested that all members who could should pay their 1935 annual dues in advance.

#### READING OF PAPERS ON LOCAL SUBJECTS

Mr. Swezey read a paper by L. L. Buchanan entitled "A New Genus and Species of Orchid Weevils."

#### READING OF PAPERS ON FOREIGN SUBJECTS

Mr. Pemberton read a paper by Edward P. Mumford entitled "On Some Terrestrial Sandhoppers from the Marquesas Islands."

#### EXHIBITIONS AND DISCUSSION OF LOCAL MATERIAL

*Periplaneta ignota* Shaw—This roach was exhibited by Mr. Swezey. He had collected two more of them at his home in Manoa Valley, Honolulu. It is distinguished from *P. americana* by the anchor-shaped pale mark on the prothorax; by the short, posteriorly rounded supra-anal lamina of the male, which is without emargination, while in the female the supra-anal lamina has emargination less deep and is right-angled instead of deep and acute as in *americana*.

*Onthophagus incensus* Say.—Mr. Swezey reported that Dr. E. A. Chapin of the U. S. Bureau of Entomology has given this identification to the Mexican dung beetle, which was exhibited at the August meeting of the Society and which Mr. Swezey had found established on the island of Hawaii.

*Symphorobius barberi* Banks.—Mr. Swezey reported the capture of this Hemerobiid on September 25, 1934, from a *Plectronia odorata* tree at Kealia, Oahu, at about 500 feet elevation, on the

new trail ascending the cliffs in that region on the north coast of the island towards Kaena Point. It indicates a wide spread of this insect, which was introduced from Mexico to prey on pineapple mealybugs several years ago.

On the same tree Mr. Swezey found two ladybeetles *Nephus bilucernarius* (Muls.), which were also introduced for the control of pineapple mealybugs. One of this species was also found by Mr. Swezey on a *Suttonia lessertiana* tree in the upper part of Keekee Gulch, which indicates a wide distribution of this beetle.

*Zorotypus swezeyi* Caudell—Mr. Swezey exhibited a specimen of this insect found by him in a rotten Straussia log on the Kawailoa trail October 2, 1934. This is an additional station in the distribution of this rare insect.

*Coccotrypes pygmaeus* (Eich.)—Mr. Swezey reported finding this scolytid beetle infesting stored almonds in the basement of his home in Honolulu. The species has previously been known to infest date seeds and other palm seeds when on the ground. This infestation of almonds is an apparent deviation from the normal habit.

*Trichogramma minutum* Riley—Mr. Swezey reported finding 93 percent of the eggs of the nutgrass moth *Bactra truculenta*, which occurred on nutgrass leaves, parasitized by this minute egg parasite. The eggs were collected at the Experiment Station, H.S.P.A. grounds during September, 1934.

*Xylocopa varipuncta* Patton.—Mr. Swezey discussed the important role played by this carpenter bee in the pollination of a certain edible *Passiflora* hybrid now growing in Honolulu and illustrated how nicely adapted it is for the accomplishment of this work. His attention was called to this relationship by W. T. Pope of the Hawaii Agricultural Experiment Station.

*Cyllene crinicornis* (Chev.)—Mr. Swezey reported rearing this longicorn beetle from *Sapindus oahuensis* and exhibited branches of the tree from which the beetles had issued. This adds another to the list of host trees for this beetle. It is commonly known as the kiawe beetle on account of its breeding in that tree more than in others. The list of hosts so far known in Hawaii includes *Prosopis juliflora*, *Acacia confusa*, *Poinciana regia*, *Haematoxylum campechianum*, *Leucaena glauca*, *Albizia lebbek*, *Fraxinus* sp. and



*Sapindus oahuensis*. The last mentioned is the first endemic tree from which this beetle is recorded. The larvae were in cut-off or injured branches.

*Tiphia segregata* Crawford—Mr. Pemberton exhibited specimens of this scoliid wasp collected by him at Oahu Sugar Company, Ltd., during September, 1934. During August, 1934, Mr. Rosa found several grubs of *Anomala orientalis*, each bearing a parasitic larva on the under surface. One of these has been reared and found to be this parasite also. These are the first records of the establishment and recovery of this *Anomala* parasite, which was introduced to Hawaii by F. X. Williams from the Philippine Islands in April, 1917. Establishment resulted from the original liberation of only six females, which had been confined with a few males for several days before liberation.

Mr. Pemberton read a communication from Mr. Mumford pointing out the need for a systematic collection and classification of Hawaiian mites. As very little work has been done on Hawaiian mites, Mr. Mumford has offered to assemble all that can be obtained by members of the Society and arrange to have them described and determined by appropriate specialists.

Mr. Bryan and Mr. Swezey spoke from recent experience of the excellent opportunity now offered for the study and collection of Hawaiian insects in the mountains of Oahu, over the newly cut trails made by the Civilian Conservation Corps. Many freshly cut native trees and shrubs are now available for examination, to which native insects, seldom seen, often are attracted.

#### EXHIBITIONS AND DISCUSSION OF FOREIGN MATERIAL

Mr. Bryan reviewed and discussed the recent and excellent book by C. H. Curran, entitled "The Families and Genera of North American Diptera."

Dr. Schmidt briefly reviewed the recent 4th Edition of Folsom's Entomology, revised by R. A. Wardle.

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#### NOVEMBER 1, 1934

The 346th regular meeting of the Hawaiian Entomological Society was held at the Experiment Station, H.S.P.A., November 1, 1934, at 2:30 p. m.

Members present: Miss Suehiro, Messrs. Mumford, Mason, Carter, Bryan, Illingworth, Swezey, Rosa, Wilder, Weinrich, McBride and Pemberton.

Visitors: Mrs. E. P. Mumford, Elwood C. Zimmerman and H. Darwin Kirschman.

President McBride called the meeting to order.

The minutes of the previous meeting were read and approved.

#### REPORTS OF OFFICERS AND COMMITTEES

Mr. Pemberton reported that \$150.00 had been paid the Honolulu Star-Bulletin as part payment for the printing of the Index to Volume 8, leaving a balance still unpaid of \$73.50.

#### READING OF PAPERS ON LOCAL SUBJECTS

Mr. Swezey presented a paper (by title only) by Edward Meyrick, entitled "New Hawaiian Lepidoptera."

#### EXHIBITIONS AND DISCUSSION OF LOCAL MATERIAL

*Lyctus curtulus* Casey—Specimens of this beetle were exhibited by Mr. Swezey, who had reared them from blocks of wood of *Sapindus oahuensis* brought in by him September 25, 1934, from the new trail up the cliffs at Kealia, Oahu. Fifteen of the beetles issued from this wood, which was cut from a branch recently cut from the tree. This species of *Lyctus* seems not to have been previously recorded from the Hawaiian Islands.

From the same blocks of wood the following insects issued between September 25 and January 30:

Beetles	16	<i>Cyllene crinicornis</i> (Chev.)
	49	<i>Lyctus curtulus</i> Casey
	1	<i>Lyctus brunneus</i> (Steph.)
	1	<i>Tarsostenus univittatus</i> (Rossi)
	9	<i>Laemophlaeus minutus</i> (Oliv.)
Moths	3	<i>Gnathocerus maxillosus</i> (Fab.)
	1	<i>Ereunetis minuscula</i> (Butl.)
	13	<i>Ereunetis simulans</i> (Butl.)
Bethylid	37	<i>Sclerodermus immigrans</i> Bridwell. Probably parasitic on <i>Cyllene</i> , as clusters of cocoons were found in beetle burrows.

*Holcobius hawaiiensis* Perkins—Mr. Swezey reported the finding of a dead *Suttonia lessertiana* tree in the forest about 1½ miles north of the Volcano House, Hawaii, July 20, 1934, which was completely riddled with larvae of an anobiid beetle. By chopping up a large part of the tree, 9 adult beetles were found in pupal cells. A section of this tree 9½ inches long and 4½ inches in diameter was cut and brought in for rearing out beetles. Six beetles issued before October 22, when the whole block was cut up and 29 larvae of various sizes were found remaining. This would make a population of 35 for the block and calculating for the whole tree would give a population of 700. Other dead *Suttonia* trees of the region were found similarly infested. The species was determined by Dr. Perkins, from specimens sent.\*

*Lagocheirus obsoletus* Thomson.—Mr. Wilder exhibited specimens of this cerambycid beetle. He stated that the larvae were found injuring immature wood of *Allamanda*.

*Argyroploce illepida* (Butler)—Mr. Wilder exhibited seed pods of *Inga edulis*, which had been injured by the larvae of this moth. This is a new host for this insect.

*Microbracon mellitor* (Say).—Mr. McBride exhibited specimens of a braconid parasite reared by him from the pink cotton-boll worm. It was suggested that this might be *Microbracon mellitor* (Say).

#### EXHIBITIONS AND DISCUSSION OF FOREIGN MATERIAL

Mr. Bryan reviewed Charles H. T. Townsend's "Manual of Myiology," Part 1, which is the first of 12 parts and is devoted to the internal and external anatomy of Diptera, especially the Muscoids, in all their stages. Sections are also included on cytology, genetics and embryology, together with technique on collecting, mounting and studying flies. This is a most valuable handbook for the specialist in Diptera.

Mr. McBride reviewed Alvah Peterson's recent "Manual of Entomological Equipment and Methods," Part 1.

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\* See page 85 of this issue. [Ed.]

Mr. Bryan introduced Mr. Elwood C. Zimmerman, entomologist with the recent Bernice P. Bishop Museum expedition into Southeastern Polynesia. Mr. Zimmerman gave a very interesting account of the various islands visited and certain of the insect fauna encountered. His remarks were of particular interest on the rapid disappearance of insect life on many of the islands, owing to the almost complete extinction of the native flora from various causes. In some cases which he cited a single catastrophe such as a fire or landslide might be sufficient to remove entirely the few remnants of native plants found on some of the islands. He was especially fortunate in being able to collect a good number of new species of *Rhyncogonus* from isolated spots where the native flora is verging on extinction.

Mr. Wilder stated that during his recent visit to Tahiti he was impressed with the great need for a development of plant quarantine on that island, and had urged the authorities to inaugurate such service, because of the absence of many serious insect pests that are in danger of introduction. He stated that such a quarantine has now been authorized and will become effective December 1, 1934.

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#### DECEMBER 6, 1934

The 347th regular meeting of the Hawaiian Entomological Society was held at the Experiment Station, H.S.P.A., December 6, 1934, at 2:30 p. m.

Members present: Miss Suehiro, Messrs. Au, Bryan, Carter, Chock, Ehrhorn, Fullaway, Illingworth, Ito, Keck, Mason, McBride, Pemberton, Rosa, Schmidt, Swezey, Van Zwaluwenburg and Williams.

Visitors: Miss Mabel Chong, Messrs. H. Darwin Kirschman, Donald M. Murakoshi and Elwood C. Zimmerman.

President McBride called the meeting to order.

The minutes of the previous meeting were read and approved.

#### REPORTS OF OFFICERS AND COMMITTEES

The Treasurer submitted his annual report, which showed a balance on hand December 3, 1934, of \$47.26. A balance of \$88.50 is still outstanding against the Society for the printing of the Index to Volume 8 of the Proceedings.

The President appointed Mr. Ehrhorn to audit the Treasurer's report.

The Secretary reported that the Executive Committee had transferred the name of Dr. Carl Schmidt from junior to full membership.

The following officers were elected for the year 1935:

President—Walter Carter.

Vice-President—E. M. Ehrhorn.

Secretary-Treasurer—R. H. Van Zwaluwenburg.

Additional members of Executive Committee—Messrs. C. E. Pemberton and C. B. Keck.

Mr. Bryan proposed the name of Mr. Elwood C. Zimmerman as a junior member of the Society.

President McBride then gave the annual address entitled: "Response of the Mediterranean Fruit Fly to its Environmental Factors." This interesting paper called forth discussion from those present.

A paper, "Larva of *Tetrigus fleutiauxi*," descriptive of material from Fiji, written by Dr. J. A. Hyslop and Dr. Adam Böving, was presented by R. H. Van Zwaluwenburg.

#### NOTES AND EXHIBITIONS

*Lyctus curtulus* Casey—Mr. Swezey reported having received from Dr. Van Dyke verification of the name of this beetle which was exhibited at the previous meeting.

*Coleotichus blackburniae* White—Mr. Bryan reported that he had been informed by Mrs. Thomas H. Petrie that in 1933 there had been great quantities of the metallic shield-back bug, *Coleotichus blackburniae* on Tantalus, Oahu, during October and the first week in November, after which she had noticed many of them dead. They had been so abundant as to nearly cover the vegetation in places. This note supplements the observation of Dr. Williams (Proc. Haw. Ent. Soc., viii, p. 387, 1934) that he had found the molted skins on Tantalus on September 24, 1933. No such abundance has been noted this year, although a few specimens were seen by Mrs. Petrie about her Tantalus home.

*Litomastix floridana* (Ashm.)—This parasitic wasp was reported by Dr. Illingworth checking completely an outbreak of

*Plusia chalcites* Esp. in his garden at Kaimuki. The latter part of October the moths were everywhere in evidence. On November 10 the first full-grown *Plusia* caterpillar was found on a *Coleus* plant. This larva spun up at once, and from it issued several hundreds of the wasps, which were exhibited. Several other very young caterpillars were seen on the foliage, but apparently none reached maturity. Mr. Swezey first discovered this parasite in Honolulu on the 27th of February, 1929. Results of his investigations appeared in *Proc. Haw. Ent. Soc.*, vii, p. 419.

*Saissetia oleae* (Bern.)—Mr. Ehrhorn exhibited cuttings of crown flower (*Calotropis gigantea*) heavily infested with colonies of this olive scale, which has of late years seldom been seen in such numbers.

*Symbionts of Pseudococcus brevipes* (Ckll.)—Dr. Carter exhibited photographs of two kinds of symbionts found in the mycetom of the pineapple mealybug. One of these appears to be involved in the phenomenon of green-spotting of pineapple leaves.

*Parasites of Pepper Weevil*—Mr. Fullaway exhibited four species of hymenopterous parasites bred from pepper weevil (*Anthonomus eugenii* Cano) material collected in Guatemala by F. A. Bianchi. One of these is probably an egg-parasite.

*Taeniothrips on Onions*—Mr. Fullaway reported that Mr. John Steinweden has identified a thrips common on onions both in Hawaii and Japan as a new species of *Taeniothrips*. This species, Mr. Fullaway remarked, is sometimes more abundant on onions than the better known *Thrips tabaci* Lind.

*Periplaneta ignota* Shaw from Tahiti—Mr. Zimmerman exhibited specimens of this blattid taken by the Mangarevan expedition in Tahiti; a new record.

*Exhibit of Polynesian Insects*—Several boxes of material from the same expedition to southern Polynesia were shown by Mr. Zimmerman. Of particular interest were several species of *Proterhinidae*.

*Mimicry*—Dr. Williams exhibited a box of Guatemalan insects some of which illustrated a remarkable mimicry of other species.

Mr. Ehrhorn spoke briefly on his recent trip to South America.